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EXAMINER	
SHABMAN, MARK A	

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2856	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,627	SANO ET AL.	
	Examiner	Art Unit	
	MARK SHABMAN	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *13-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,34 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 18 July 2008 have been fully considered but they are not persuasive.

Applicant argues the Cimmino reference only teaches the detection of a convexity of a surface in paragraph 3 on page 10 of the remarks. The argument is based on the idea that the present application can be used to detect both a convexity and concavity of a surface if necessary. It is noted that with regards to claim 1, the only mention of concavity is in the preamble describing a "convexo concave amplifying device". The specification does not supply support stating that a "convexo concave amplifying device" must be able to detect both a convexity and concavity of a surface under test. Rather, the phrase is used to define a property of the surface, with regards to its shape. By definition, a "convexo concave" is a surface which is convex on one side and concave on the other. Therefore, in the case of the Cimmino reference, the apparatus as described reads on the claim apparatus limitations (lines 4-8) and the preamble to those limitations as it is capable of detecting and amplifying the convexity of the "convexo concave" (i.e. a curled finger) as seen in figure 2b. It is also noted that in the specification of the present application, note is made of a patent (4,793,354 paragraph 0006, page 2) which is described as used for "easily detecting or sensing the convexo concave of [an] object". The apparatus of the patent is used for detecting an abnormal growth during a breast exam, which would result in a convex change rather than a concavity. Thus, the example given of a "convexo concave amplifying device"

functions only to detect a convexity and not a concavity and it is therefore understood that the convexo concave amplifying device does not need to detect both types of distortion as is argued. It will also be noted, that while not explicitly stated in the Cimmino reference, the flexible sheet 13 would allow for the sensing device to deform in the opposite direction as seen in figure 4, if only very slightly. Such a deformation would cause a slight change in the capacitance as the conductors A and B compress and retract, thus amplifying the concavity slightly. Since the claim does not include any limitations to the flexibility in both a convex and concave direction, and distinction between detection of one versus the other, the original rejection is deemed to be proper.

The reasoning stated above further applies to the rejection of the method claim 10 presented. The claim recites using the sensing member of claim 1 and contacting the sensing member to the surface of an object thereby deforming it. The detection step for detecting the convexo concave of the surface is also covered by the Cimmino reference as stated previously.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 34 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claims 34 and 35**, the claims recite that the "exhibiting member includes an inclined surface and plurality of protrusions." The accompanying drawings show this embodiment in figure 2 which is seen with the "inclined angle θ" present. However, the angle θ is generated as a result of a detected defect in the surface which is being tested (shown by the thick black line in the figure) and is not present at all times. If for example the apparatus was to be placed on a flat, defect-free surface, the angle would not exist due to the flexibility of the apparatus and its ability to lie flat on the surface. Hence, the inclination in claims 34 and 35 are not a permanent characteristic of the apparatus itself but rather the surface which is being tested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 7-8, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cimmino PCT/AU00/00383 (hereinafter referred to as Cimmino).

Regarding **claim 1**, Cimmino discloses on pages 3 and 4 and in accompanying figures 2a and 2b, an electronic transducer for measuring flexion. The transducer comprises a "sensing member" (support surface13) which is described as flexible and non-extensible and is able to contact a surface which could be flat, or adapt to the curves of an unsmooth surface as well. An "exhibiting member" (enclosed by dielectric

material 11) is attached to the sensing member or "formed on the surface" of it as claimed. The dielectric material is described as having a substantial elasticity. Cimmino does not describe the elasticity as being smaller than that of the “flexible sheet” as claimed, however, it would have been obvious to one of ordinary skill in the art at the time of invention to ensure that the exhibiting member had a smaller deformation resistance to ensure that the sensing of the changes in contour is done entirely by the sensing member and its deformation due to a sensed curve, and the exhibiting member does not restrict this in any way due to a greater resistance to deformation.

Regarding **claim 2**, figures 2c and 2d of Cimmino show the loops of the exhibiting layer broken down into individual components. As shown and described on page 4, the loops of the exhibiting layer are spaced from each other in a parallel fashion and on the surface of the flexible sheet.

Regarding **claim 3**, Cimmino teaches the use of parallel loops for detection means as seen in figures 2b and 2c. It would have been obvious to one of ordinary skill in the art at the time of invention to use parallel plates in the exhibiting layer to add to the sensitivity of the system by providing more surface area which can be affected by the sensed imperfections.

Regarding **claim 7**, it would have been obvious to one of ordinary skill in the art at the time of invention to construct the sensing member out of a resin such as a plastic due to its flexibility during sensing and wear resistance over time.

Regarding **claim 8**, the apparatus of Cimmino uses a measured capacitance to determine the amount of strain on the sensing member via measurement of a capacitance of the transducer modules.

Regarding **claim 10**, Cimmino discloses on pages 3 and 4 and in accompanying figures 2a and 2b, an electronic transducer for measuring flexion. The transducer comprises a "sensing member" (support surface 13) which is described as flexible and non-extensible and is able to contact a surface which could be flat, or adapt to the curves of an unsmooth surface as well. An "exhibiting member" (enclosed by dielectric material 11) is attached to the sensing member or "formed on the surface" of it as claimed. The dielectric material is described as having a substantial elasticity. Cimmino does not describe the elasticity as being smaller than that of the “flexible sheet” as claimed, however, it would have been obvious to one of ordinary skill in the art at the time of invention to ensure that the exhibiting member had a smaller deformation resistance to ensure that the sensing of the changes in contour is done entirely by the sensing member and its deformation due to a sensed curve, and the exhibiting member does not restrict this in any way due to a greater resistance to deformation.

In use, the transducer is placed in contact with a surface and a deformation is generated by and sensed along the sensing member 13. The sensing is conducted by determining a change in the exhibiting member of the apparatus due to the deformation of the material as claimed.

Regarding **claim 12**, the apparatus of Cimmino is used for detection of a curvature of a surface. The apparatus as described is capable of detecting on a surface portion having flexability with a convexo concave portion covered by the surface portion. The apparatus of Cimmino detects by being pressed against a surface and determining how "deformed" (curved) it is due to the shape of the object below, and thereby detecting the convexo concave of the object.

Regarding **claims 34 and 35**, the apparatus of Cimmino as viewed in figures 2(a) and 2(b) who the sensing member with a "thickness" and the exhibiting member including "a plurality of protrusions" formed by conductors A and B. Depending on the surface to which the sensing apparatus is applied to, it could potentially include an "inclined surface" similar to that seen in figure 2(b) as the curvature on the left is "inclined" relative to a point on the right. As the angles θ are a product of the apparatus's response to the surface, the protrusions could incline in a "tangential direction that is proportional to a product of an inclined angle θ of the inclined surface and the thickness T of the convexo concave amplifying device", however this would depend on the surface under test and its imperfections to generate the angle θ.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cimmino as applied to claim 10 above, and further in view of Cundari US Patent 6,179,790 (hereinafter referred to as Cundari).

Regarding **claim 11**, the method of Cimmino does not disclose the method of sliding the convexo concave amplifying device during measurement of a surface. Cundari discloses a tissue examination device for detecting imperfections such as tumors below the surface of skin. While Cundari does not detect surface deformations as the claimed invention, it does teach the sliding of the sensor system to detect imperfections over a larger area. It would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Cundari in combination with those of Cimmino to detect surface imperfections over a larger area by sliding the apparatus across a surface of varying curvature.

Claims 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cimmino in view of Cruz-Hernandez US Patent 6,445,284 B1 (hereinafter referred to as Cruz-Hernandez).

Regarding **claim 4**, Cimmino does not disclose the "protrusions" as columns. Cruz-Hernandez discloses an electro-mechanical transducer for providing tactile display or serving as a tactile input sensor. Figures 3a-3c show embodiments in which a sensing area composed of actuators 52 and exhibiting members 50 which exhibit any changes in the sensing member. For example, the movement of actuator 52A is transmitted to the rods 50 to cause a change in the distance between them. Column 7 describes these exhibiting members 50 as vertical rods or tubes, reading on the "columns" as claimed. It would have been obvious to one of ordinary skill in the art at

the time of invention to combine the teachings of Cimmino with those of Cruz-Hernandez to allow for an improved sensation which can more easily be detected with the skin.

Regarding **claim 5**, it would have been obvious to one of ordinary skill in the art at the time of invention to make the vertical rods of a softer material such as rubber or foam to make them softer on the skin of a finger during sensing.

Regarding **claim 6**, Cruz-Hernandez shows an embodiment in figure 5D in which the "exhibiting members" are surrounded by a protective enclosure 80 to prevent breakage. As the enclosure is part of the exhibiting member, it acts as a "sheet having plural holes" in the direction of the thickness as claimed.

Regarding **claim 9**, Cruz-Hernandez describes the use of a computing device for generating signals based on the strain in the system. It would have been obvious to one of ordinary skill in the art at the time of invention to measure the strain of the system by connecting it to a strain gauge and using the signals generated as strain gauges were commonly used in the art to determine such forces.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK SHABMAN whose telephone number is (571)270-3263. The examiner can normally be reached on M-F 8:00am - 4:30pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. S./
Examiner, Art Unit 2856

/Daniel S. Larkin/
Primary Examiner, Art Unit 2856